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(54) **Flipper-sandal**

(57) A flipper-sandal comprising a sandal base, an inner sole positioned under the sandal base and an outer sole positioned under the inner sole, the inner and outer soles being connected to each other and to the

base and being horizontally movable from a sandal position in which they correspond to the position of the base and a flipper position in which they are moved forwards and outwards to opposite sides with respect to the position of the base.

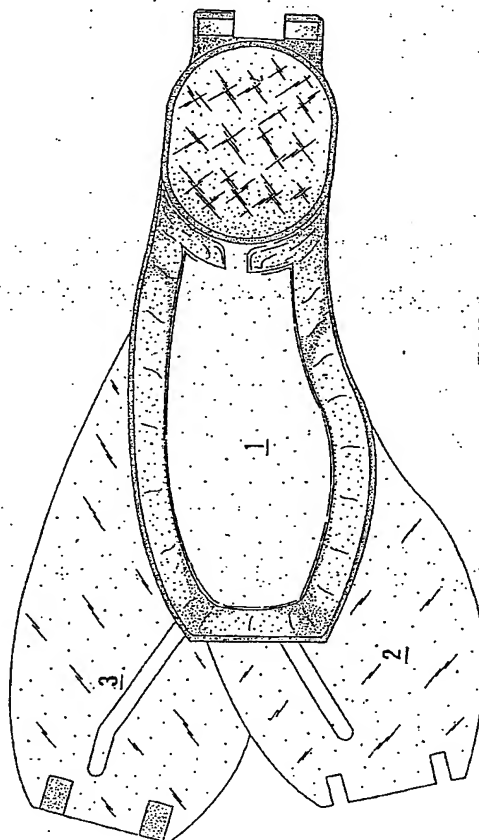


FIG 10

## Description

The present invention has as its object a flipper-sandal, that is to say footwear that combines the functions of a shoe and those of a swimming aid.

To improve performance when swimming the use of flippers is well known. These flippers have a larger surface area than the surface area of the foot, and allow the swimmer to move a greater volume of water when swimming. However, they are not suited for use when walking normally.

The present invention solves this problem, by providing a flipper-sandal that comprises a sandal base, an inner sole positioned under the sandal base, and an outer sole positioned under the inner sole, said inner and outer soles being connected to each other and to the sandal base and being movable horizontally from a sandal position in which they correspond to the position of the sandal base, and a flipper position in which they are moved forwards and outwards to opposite sides with respect to the position of the sandal base, said outer sole comprising a movement element to move the inner and outer soles from the sandal position to the flipper position.

The advantages of the present invention are thus evident, as the two functions of sandal and flipper are combined in a single article of footwear. These functions can be selected by the user with ease, according to the use desired.

The present invention will be described with reference to a preferred embodiment thereof, given as a non-limiting example.

In the following description, reference will be made to the drawings, in which:

figure 1 shows a longitudinal section view of the sandal base;  
figure 2 shows a plan view from above of the sandal base;  
figure 3 shows a plan view from above of the inner sole;  
figure 4 shows a section view of the inner sole taken along line B-B of figure 3;  
figure 5 shows a plan view from above of the outer sole;  
figure 6 shows a longitudinal section view of the outer sole;  
figure 7 shows a longitudinal section view of the sandal base and the inner and outer soles as a whole;  
figure 8 shows a rear view of a connector element for connection of the inner and outer soles to the sandal base;  
figures 9A, 9B and 9C show variations in the position of the inner and outer soles when passing from the sandal position to the flipper position; and  
figure 10 shows a plan view from above of the flipper-sandal according to the invention in the flipper

position.

In the above figures the same numbers are used to indicate the same parts.

Figure 1 shows a longitudinal section view of the sandal base 1 of the flipper-sandal according to the invention. First and second locking and sliding elements 5, 6 are present, for example pins, the top end areas of which are arranged inside the base 1. There is also visible at the rear of the base, and thus on the right in the figure, a hollow region 32 to house a connection element, which will be described below, to connect the inner and outer soles to the base 1.

Figure 1 is shown in cross-section along line A-A of the base 1 illustrated in figure 2. Said figure 2 shows a plan view from above of the base 1, in which the blocking and sliding elements 5, 6 are positioned, indicated by dashed lines in the figure. This base also has recesses 21, 22 arranged at the front, suitable to house respective projections on the outer sole, which will be described in the following.

Finally, on the rear of the base 1 are hollow regions 32 to house an element for connection of the inner and outer soles to the base 1. These hollow regions 32 are formed within an area 19 that forms an integral part of the base 1.

Figure 3 shows a plan view from above of the inner sole 2 positioned under the base 1. It comprises a first central slot 9, in which the second blocking and sliding element 6 slides, arranged centrally and extending in a longitudinal direction with respect to the position of the foot; there is also a first front slot 10, in which the first blocking and sliding element 5 slides, arranged at the front and extending obliquely with respect to the direction of the foot; there is also a first rear slot 11, in which an additional blocking element on the outer sole slides, which will be described in the following, said slot being positioned at the back and consisting of a first longitudinal section 12 and a substantially transversal section 13. The inner sole 2 also has recesses 23, 24 arranged at the front, capable of housing respective projections on the outer sole, which will be described in the following.

Metal sheets are inserted within the inner sole 2, around the first slots 9, 10 and 11, in order to encourage sliding of the blocking elements within said first slots 9, 10 and 11. These metal sheets are shown in a partial and schematic manner in the figure and are indicated by a dotted line and the numbers 27, 28 and 29, respectively.

Figure 4 shows a section view of the inner sole 2 along the line B-B of figure 3, in which it is possible to see in greater clarity the arrangement of the metal sheets 27, 28 and 29.

Figure 5 shows a plan view from above of the inner sole 3. A second central slot 14 is present in which to slide the second blocking and sliding element 6, arranged centrally and extending in a longitudinal direc-

tion with respect to the direction of the foot. The second central slot 14 in the outer sole 3 is longer than the first central slot 9 in the inner sole 2 by a section that approximately corresponds to the length of the first longitudinal section 12 of the first rear slot 11 in the inner sole 2. There is also present a second front slot 15 in which to slide the first blocking and sliding element 5, arranged at the front and consisting of an oblique section 16 and a second longitudinal section 17. Said second longitudinal section 17 is as long as the first longitudinal section 12 in the first rear slot 11. There is also present, arranged to the rear, a third blocking and sliding element 7 protruding therefrom, the lower end area of which is within the outer sole. There are then present projections 25, 26 arranged at the front, capable of inserting into the respective recesses 21, 22 in the base 1 and 23, 24 in the inner sole 2. Finally, a movement element 4 is arranged on the rear part of the outer sole 3; this element, which will be described in greater detail in the following figures, serves to move the inner and outer soles 2, 3 with respect to the base 1 when passing from the sandal position to the flipper position. Said element 4 forms an integral part of the outer sole 3 and can either be made in one piece therewith, or be made separately and subsequently joined together. It is illustrated in the figure, for example, as being of a different material from the material of which the outer sole 3 is made.

Metal sheets are inserted into the outer sole 3, around the slots 14 and 15, in order to encourage sliding of the blocking elements within the second slots 14, 15. These metal sheets are illustrated schematically in the figure and are indicated by a dotted line and the numbers 30 and 31, respectively.

Figure 6 shows a section view of the outer sole 3 along-line C-C of figure 5, in which it is possible to see more clearly the arrangement of the metal sheets 30, 31. There are also areas 33, 34 for housing of the bottom end of the respective blocking and sliding elements 5, 6. The projection 25 is visible at the front end, and is capable, along with the projection 26, not visible in this section, of fittedly engaging with the respective recesses 21, 22 and 23, 24 in the base 1 and in the inner sole 2, respectively, to keep the sandal in position. There is also the movement element 4 capable of moving the inner and outer soles 2, 3 with respect to the base 1 when passing from the sandal position to the flipper position. The third blocking and sliding element 7 is inserted into said movement element 4. The movement element 4 further comprises a connection element 8, for connection of the outer sole 3 to the base 1 by means of insertion into the hollow regions 32.

Figure 7 shows a longitudinal section view of the base 1 and the inner and outer soles 2 and 3 as a whole, together with the blocking and sliding elements 5, 6, 7. The inner sole 2 slidably engages with the blocking and sliding elements 5, 6 and 7 by means of the respective first slots 10, 9 and 11, and through the respective metal sheets 28, 27 and 29 aiding sliding of said blocking and

sliding elements. The outer sole 3 is arranged below the inner sole 2, and slidably engages with the blocking and sliding elements 5, 6 by means of the respective slots 15, 14 and through the respective metal sheets 31, 30 aiding sliding. The base 1 and the inner and outer soles 2, 3 are kept in sliding contact with each other by locking of the bottom head of each blocking and sliding element 5, 6 inside the respective areas 33, 34 formed in the outer sole 3. Finally, the connection element 8 is visible, belonging to the movement element 4, also illustrated in the figure.

Figure 8 shows a rear view of the element 4 for movement of the inner and outer soles 2, 3 with respect to the base 1, in which the connection element 8 is more clearly seen, comprising end areas 35, 36 for connection with the hollow regions 32 of the base 1. There is also a handle area 37.

With reference now to figures 9A to 9C, operation of the flipper-sandal according to the present invention will be described. In these figures, only the inner and outer soles 2, 3 will be shown, in a plan view from above, together with the elements necessary to understand the operation of the flipper-sandal according to the invention.

Figure 9A shows the flipper-sandal in the sandal position. In this position the element 4 of the outer sole 3, not shown in the figure, is in the position illustrated in the preceding figure 7, with the connection element 8 inserted in the hollow regions 32 of the base 1 between the end areas 35 and 36.

To return now to figure 9A, the central slots 9, 14 are superimposed in such a way as to coincide throughout the entire length of the first central slot 9 and so that the second central slot 14 continues to extend beyond the rear end portion of the first central slot 9; the front slots 10, 15 on the contrary are superimposed in such a way as to coincide only at their front end portions.

The first blocking and sliding element 5 passes through the front end portions of the front slots 10, 15, in particular through the front end portion of the second longitudinal section 17 of the second front slot 15; the second blocking and sliding element 6 passes through the front end portions of the central slots 9, 14 and the third blocking and sliding element 7 passes through the rear end portion of the first longitudinal section 12 of the first rear slot 11.

As soon as the user wishes to pass from the sandal position to the flipper position, the movement element 4 illustrated in figure 8 is gripped in the handle area 37, in such a way as to extract the connection element 8 with its end areas 35, 36 from the hollow regions 32.

Following this, the element 4 is pushed in a longitudinal direction with respect to the foot, taking with it the outer sole 3 along with the third blocking and sliding element 7. In this way an intermediate position is reached, illustrated in figure 9B, in which the outer sole 3 has moved with respect to the inner sole 2, in particular:

- the third blocking and sliding element 7 reaches the front end of the first longitudinal section 12 of the first rear slot 11;
- the second central slot 14 has moved with respect to the first central slot 9; these are superimposed in such a way as to coincide along the whole length of the slot 9, but so that the slot 14 continues to extend beyond the front end area of the slot 9;
- the second front slot 15 has moved in such a way that the first blocking and sliding element 5 passes simultaneously through the front end portions of the slot 10 and the oblique section 16 of the slot 15,

At this point, still pushing in a longitudinal direction with respect to the foot, the movement element 4, and with it the outer sole 3 together with the third blocking and sliding element 7, the flipper position illustrated in the following figure 9C is reached, in which:

- the central slots 9, 14 and the front slots 10, 15 diverge laterally in opposite directions to each other and in such a way as to coincide only at their rear ends, through which the blocking and sliding elements 5 and 6 pass, respectively; and
- the third blocking and sliding element 7 passes through the left side end portion of the substantially transversal section 13 of the first rear slot 11.

Finally, with reference to figure 10, a plan view from above is shown of the flipper-sandal in the flipper position, in which the inner and outer soles 2, 3 are moved forwards and to opposite sides with respect to the position of the base 1.

The present invention is given above in an example embodiment, and is not intended to be limited thereto. In particular, it is possible to foresee different shapes for the movement element 4 as well as the elements it comprises; it is also understood that the materials used to make the base and the inner and outer soles may be various and different, however for preference rubber and/or plastic.

## Claims

### 1. A flipper-sandal, comprising:

a sandal base (1), an inner sole (2) positioned under the base (1), and an outer sole (3) positioned under the inner sole (2), said inner and outer soles (2, 3) being connected to each other and to the base (1) and being horizontally movable from a sandal position in which they correspond to the position of the base (1) and a flipper position in which they are moved forwards and outwards to opposite sides with respect to the position of the base (1), said outer sole (3) comprising a movement element (4) to

move the inner and outer soles (2, 3) from the sandal position to the flipper position.

### 2. A flipper-sandal according to claim 1, in which

the inner and outer soles (2, 3) are connected to each other and to the base (1) by means of first and second blocking and sliding elements (5, 6) integral with the base (1), said first and second elements (5, 6) being arranged between the base (1) and the outer sole (3) in such a way as to pass through the inner sole (2), and in which the movement element (4) comprises: a third blocking and sliding element (7) integral with the outer sole (3) to move the soles (2, 3) with respect to the base (1), said third blocking and sliding element (7) being arranged between the outer sole (3) and the inner sole (2), and a connection element (8) to connect the soles (2, 3) to the base (1).

### 3. A flipper-sandal according to claim 2, in which:

the inner sole (2) comprises: a first central sliding slot (9) arranged centrally and extending in a longitudinal direction with respect to the foot, a first front sliding slot (10) arranged at the front and extending obliquely with respect to the direction of the foot, a first rear sliding slot (11) arranged at the rear and consisting of a first longitudinal section (12) and of a substantially transversal section (13);

the outer sole (3) comprises: a second central sliding slot (14) arranged centrally and extending in a longitudinal direction with respect to the direction of the foot, a second front sliding slot (15) arranged at the front and consisting of an oblique section (16) and of a second longitudinal section (17);

in which:

the second central slot (14) is longer than the first central slot (9) by a length approximately corresponding to the length of the first longitudinal section (12) of the first rear slot (11); the second longitudinal section (17) of the second front slot (15) is approximately as long as the first longitudinal section (12) of the first rear slot (11);

the oblique section (16) of the second front slot (15) is as long as the first front slot (10); and the oblique direction of the oblique section (16) is opposite, with respect to the longitudinal direction, to the oblique direction of the first front slot (10);

in which in the sandal position:

the first central slot (9) and the second central slot (14) are superimposed in such a way as to coincide for the entire length of the first central

slot (9) and the first front slot (10) and the second front slot (15) are superimposed in such a way as to coincide only in their respective front end portions; and

the first blocking element (5) passes through the front end portions of the first front slot (10) and of the second front slot (15), the second blocking element (6) passes through the front end portions of the first central slot (9) and of the second central slot (14), and the third blocking element (7) passes through the rear end portion of the first longitudinal section (12) of the first rear slot (11);

and in which in the flipper position:

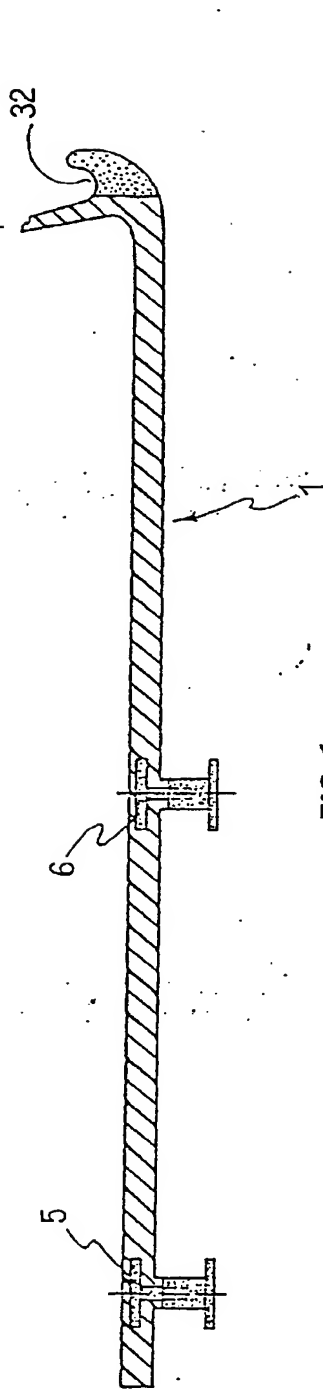
the first and second central slots (9, 14) and the first and second front slots (10, 15) are laterally diverging in opposite directions to each other and in such a way as to coincide only at their rear end portions; and

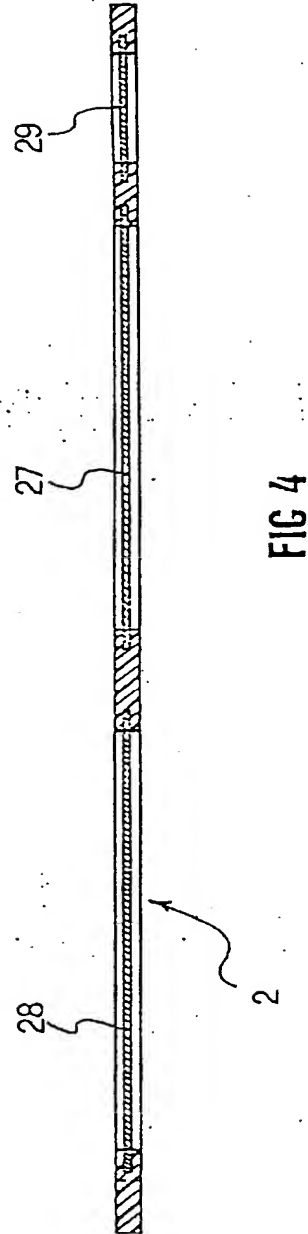
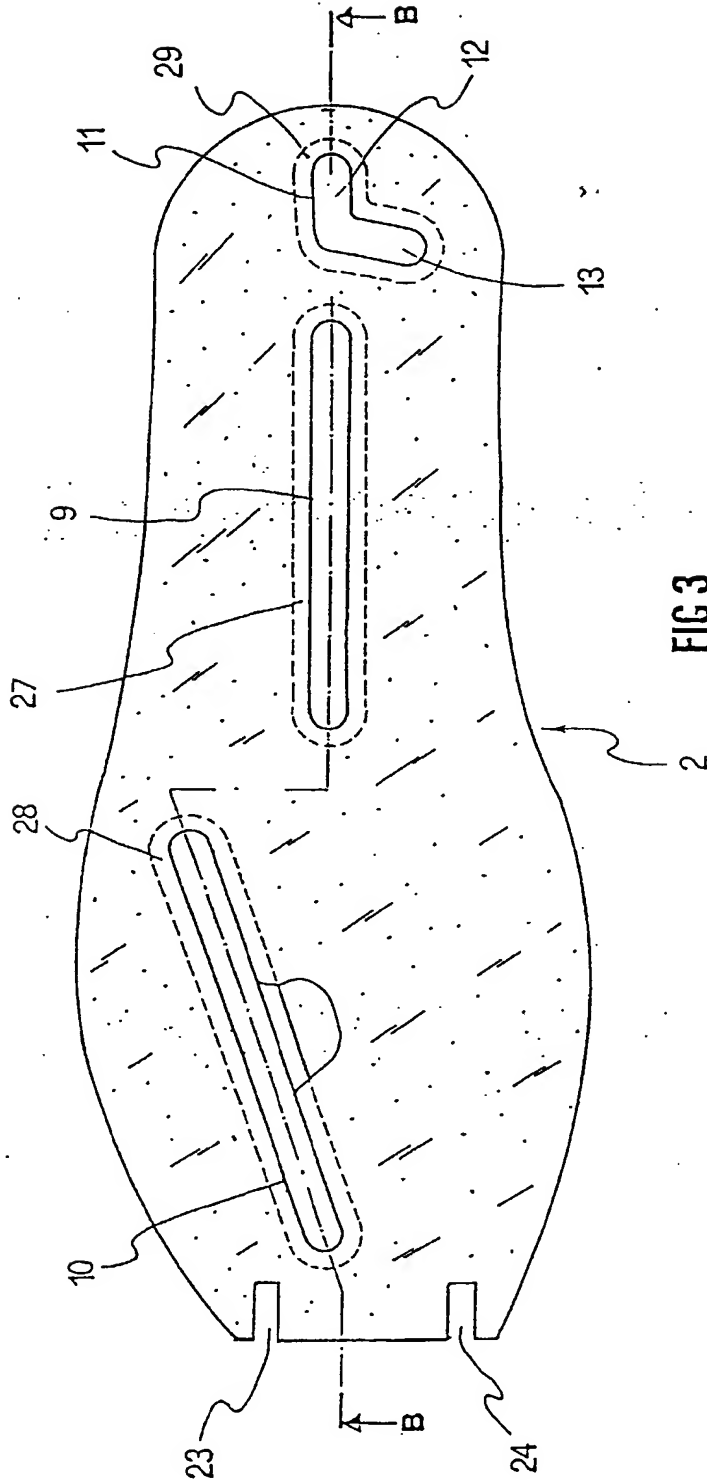
the first and second blocking elements (5, 6) pass through the respective coinciding portions of the rear ends of the first and second front slots (10, 15) and of the first and second central slots (9, 14), and the third blocking element (7) passes through the side end portion of the substantially transversal section (13) of the first rear slot (11).

4. A flipper-sandal according to claim 3, in which inside the inner sole (2), around the first central slot (9), the first front slot (10) and the first rear slot (11), and inside the outer sole (3) around the second central slot (14) and the second front slot (15), respective metal sheets are inserted (27, 28, 29; 30, 31) to encourage sliding of the first, second and third blocking and sliding elements (5, 6, 7).
5. A flipper-sandal according to any one of the preceding claims, in which the outer sole (3) comprises projections (25, 26) and the base (1) and the inner sole (2) comprise respective recesses (21, 22; 23, 24) capable of fitting together when in the sandal position.
6. A flipper-sandal according to any one of the preceding claims, in which the base (1) and the inner and outer soles (2, 3) are made of rubber and/or plastic.

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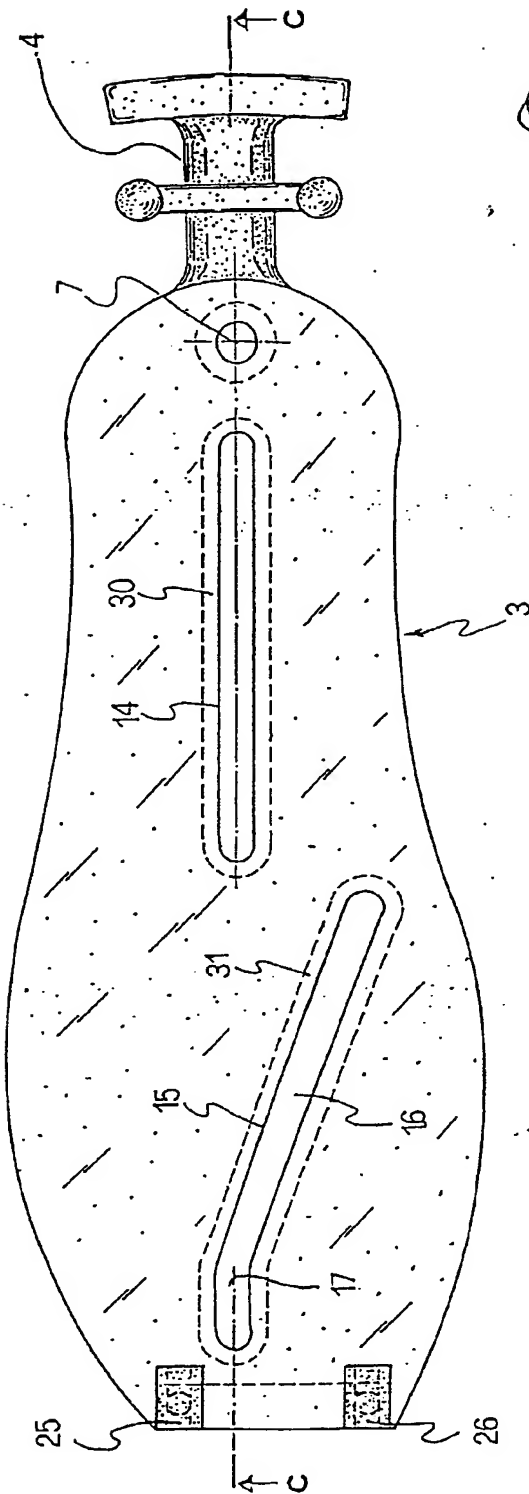


FIG 5

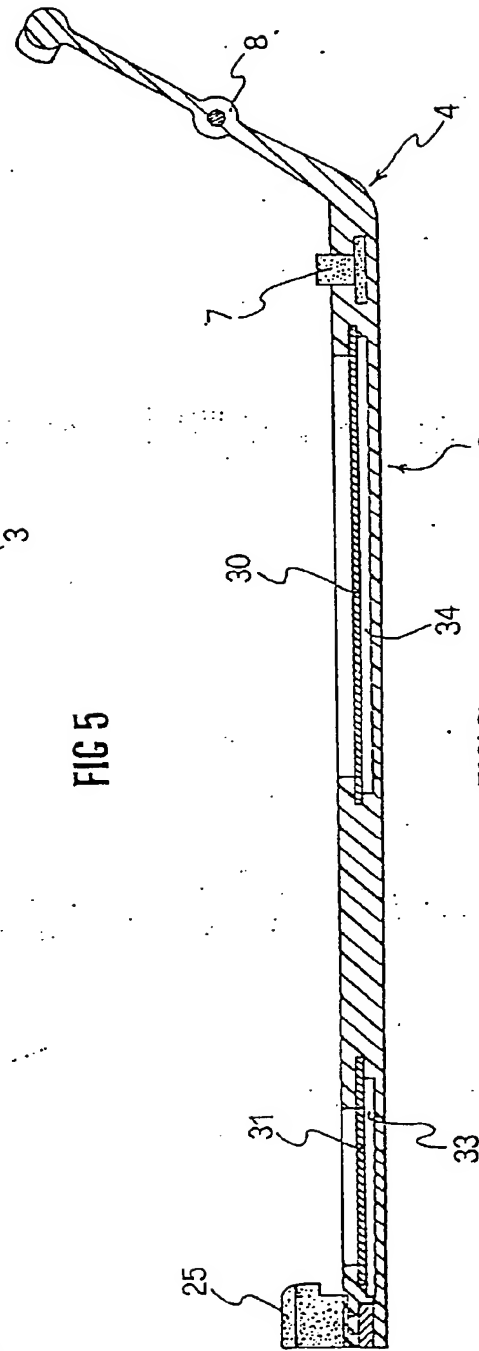


FIG 6



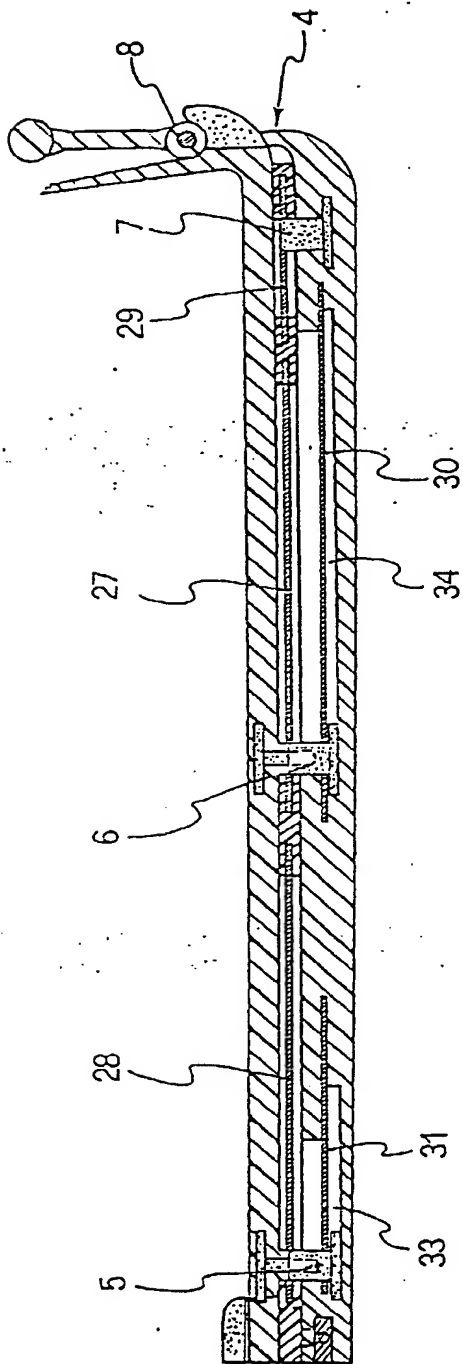


FIG 7

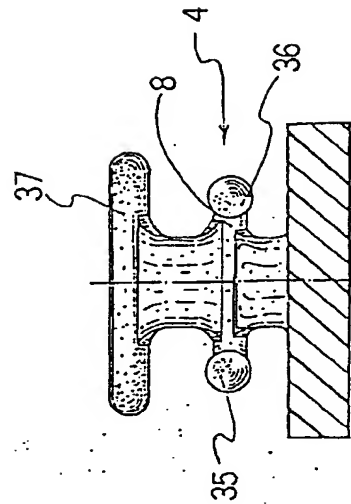


FIG 8

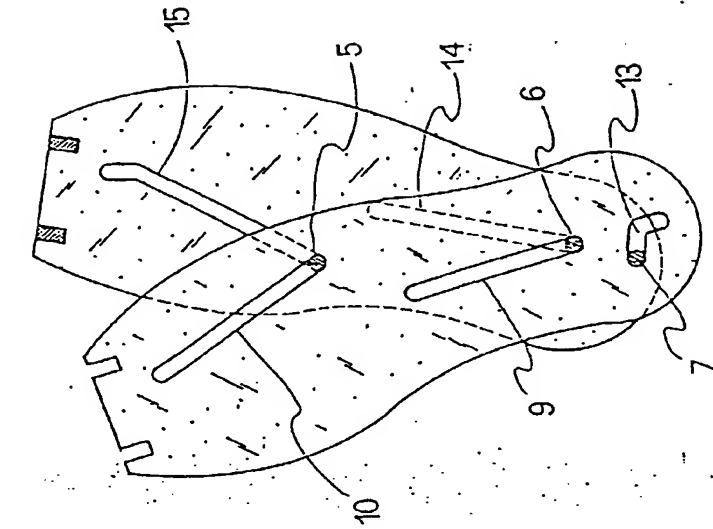


FIG 9A

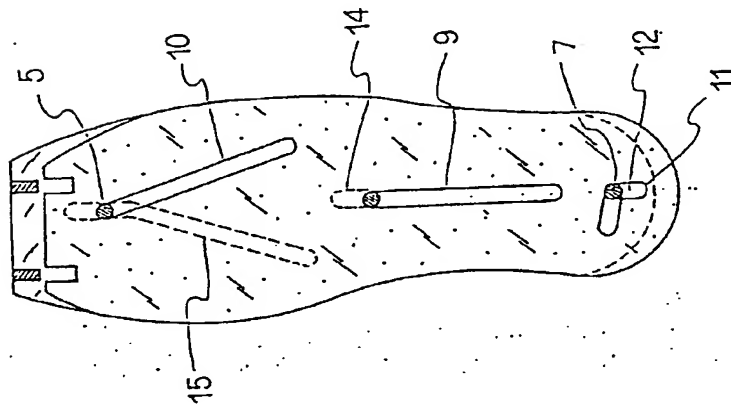


FIG 9B

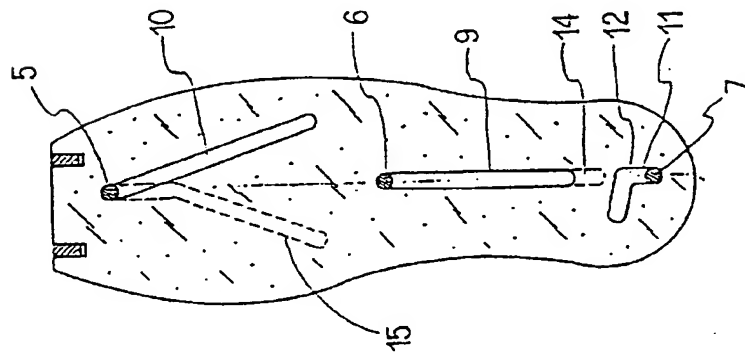


FIG 9C

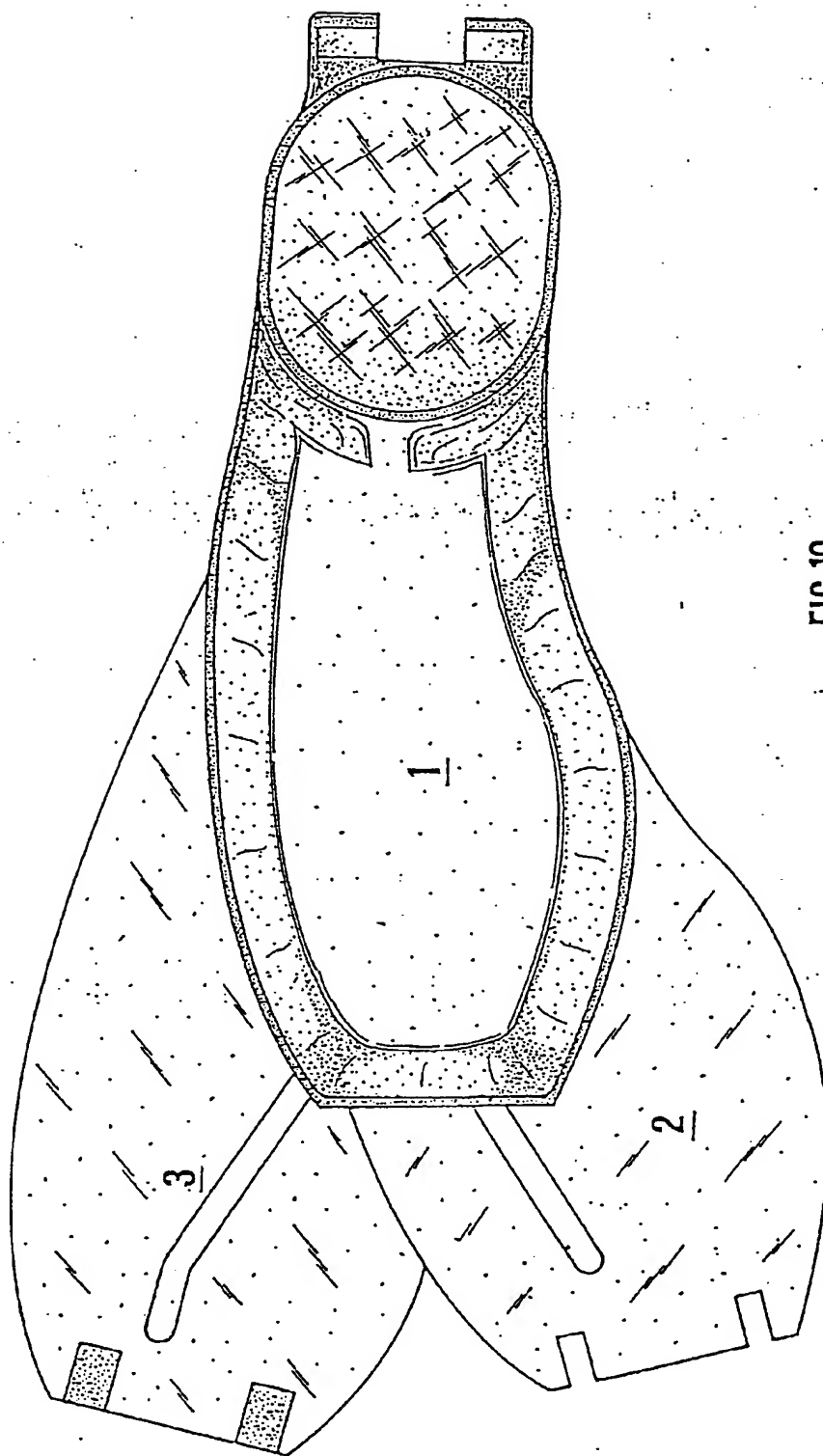


FIG 10

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